



FORT DAVIS

Inventory of Fort Davis National Historic Site

National Park Service managers are confronted with increasingly complex and challenging issues that require a broad-based understanding of the status and trends of each park's natural resources as a basis for making decisions, working with other agencies, and communicating with the public to protect park natural systems and native species. The Inventory and Monitoring (I&M) Program is part of the National Park Service's effort to emphasize reliance on science to improve management decisions and safeguard our natural heritage. An essential component of this strategy is a comprehensive inventory of the natural resources found in national parks. Inventories are extensive point-in-time surveys designed to contribute to our knowledge of the condition of park resources and establish baseline information for subsequent monitoring activities. The I&M Program provides guidance, funding, and technical assistance to complete a set of 12 baseline natural resource inventories for parks, including the presence of plants, animals, and other resources such as water, air quality, and climate.

The Chihuahuan Desert I&M Network (CHDN) comprises seven national parks in New Mexico and Texas. Six of the seven CHDN parks are located in the Northern Chihuahuan Subregion of the Chihuahuan Desert Ecoregion. Fort Davis National Historic Site (NHS)

PARK BRIEF



NPS

Commanding Officer's Quarters, Fort Davis National Historic Site.

is located in the highly diverse Davis Mountains. This brief summarizes inventories coordinated by the network at Fort Davis NHS, located in southwestern Texas. Reports from inventories supported by the CHDN are available on the CHDN website, <http://science.nature.nps.gov/im/units/chdn/index.cfm> and on the Learning Center of the American Southwest website, www.southwestlearning.org. A database of inventories coordinated at the national level in cooperation with CHDN—climate, geology, air quality, and soil—are available on the I&M Program's Inventory home page: <http://science.nature.nps.gov/im/tracking/InventorySearch.aspx>.

Birds



Western tanager/Rob Bennetts

The CHDN supported an inventory of birds in low-elevation riparian habitats in Fort Davis NHS during the migration and breeding seasons between 2004 and 2006. A total of 80 species were detected at Fort Davis NHS. Based on a checklist comprised of previous area checklists and fieldwork from Fort Davis NHS, the Davis Mountains,

and the vicinity, the researchers documented 32% of bird species. No new species were added during this inventory. Seventy-two species were observed in Hospital Canyon with 42 breeding or potential breeding species. Forty-six species were observed in the Mesquite Grasslands with 34 breeding or potential breeding species.

Reptiles and Amphibians



Big Bend tree lizard/Dave Prival

In 2003 and 2004, the CHDN supported an inventory of reptiles and amphibians in Fort Davis NHS. Researchers documented 29 species: five frog and toad, 12 lizard, 11 snake, and one turtle species, including one state-listed threatened species, the Texas horned lizard (*Phrynosoma cornutum*). No nonnative reptile or amphibian species were found during this inventory. The data from this inventory could be used to detect changes within the reptile and amphibian communities that

may occur as a result of climate change, urbanization near the park boundary, drought, invasion by nonnative species, wildland fire, or other factors. Reptile and amphibian populations exhibit natural fluctuations in range extensions and contractions. The researchers provided suggestions and evaluations of potential monitoring strategies, such as monitoring species composition, species richness, species distribution, and relative abundance, for determining unexpected population changes.



Vegetation



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Fort Davis NHS contains steep cliffs, rocky hills, flat-desert-scrubland, and a cottonwood grove, which support a high diversity of wildlife. The CHDN supported preparation of a herbarium and literature review of plants for Fort Davis in 2002 and is also supporting a vegetation mapping project of the park. The project began in 2006 and includes

vegetation classification. Currently, a preliminary vegetation classification has been developed that will be revised based on sampling conducted in 2009. The researchers have created a preliminary map. The maps can be used by managers for planning and management activities. A draft of the final report should be available in 2010.

Water



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The CHDN supported a 2009 study of surface water and surface and groundwater hydrology, water quality conditions and trends, and the condition of macroinvertebrate communities in Fort Davis NHS. The only surface water resource associated with Fort Davis NHS is Limpia Creek. An extended period of drought during the late 1880s reduced both the quantity and quality of water from Limpia Creek and threatened the existence of the fort. In 2008, the creek appeared to be an intermittent stream with several pools divided by dry stream bed. During the record for water chemistry data

(1972–86), water-quality conditions generally were good, though only two macroinvertebrate sample results are available. Fort Davis NHS also pumps water from an igneous aquifer that is highly complex. Groundwater levels can vary by several hundreds of feet between closely spaced wells because strata that contain water are structurally dislocated. Water levels may also be affected by topography, differences in the storage capacity, and porousness of the rocks. The amount of groundwater in the aquifer is very closely related to the area's long-term average rate of precipitation.

For more information

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